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Abstract Of The Disclosure

An implantable rotary sealless blood pump is provided. The pump includes a housing having an inlet tube on one end and an impeller casing on the other end. A rotor is mounted for rotation within the housing, with the rotor having an elongated shaft portion and an impeller attached to the shaft portion. The impeller is located within the impeller casing. Radial magnetic bearings are carried by the shaft portion and radial magnetic bearings are carried by the housing for maintaining the shaft portion of the rotor within the inlet tube of the housing. A rotor motor includes a plurality of permanent magnets carried by the impeller and a motor stator including an electrically conductive coil located within the housing. A ring of back iron is carried by the impeller to aid in completing a flux return path for the permanent magnets. A plurality of hydrodynamic thrust bearings are located outside of the axis of rotation of the rotor. The impeller uses large axially thick blade sectors with narrow blood channels extending through the impeller, to minimize hemolysis and to increase the working surface of the blades.